

## AMENDMENTS TO THE CLAIMS

### **Claims 1-19 (Cancelled)**

**Claim 20 (New)**     A distortion compensator for compensating for distortion generated by an amplifier that amplifies a signal, said distortion compensator comprising:

    a signal level detector operable to detect a level of a signal to be amplified by the amplifier;

    a distortion compensation execution unit operable to execute distortion compensation on the signal to be amplified according to a mode of distortion compensation determined based on (i) the level of the signal to be amplified, and (ii) a correspondence between signal levels and distortion compensation control values as pairs;

    a distortion compensation control value correspondence updater operable to update the correspondence between the signal levels and the distortion compensation control values based on the signal amplified by the amplifier; and

    a distortion compensation control value number controller operable to control a number of the pairs of corresponding signal levels and distortion compensation control values,

    wherein said distortion compensation execution unit includes a distortion compensation control value interpolation unit operable to perform interpolation based on the correspondence between the signal levels and the distortion compensation control values, thereby determining the mode of distortion compensation corresponding to the level of the signal to be amplified.

**Claim 21 (New)**     A distortion compensator according to claim 20, wherein said distortion compensation control value number controller is operable to:

    increase the number of pairs of corresponding signal levels and distortion compensation control values according to a decrease in the distortion generated by the amplifier; and

    decrease the number of pairs of corresponding signal levels and distortion

compensation control values according to an increase in the distortion generated by the amplifier.

**Claim 22 (New)** A distortion compensator according to claim 21, wherein said distortion compensation control value number controller is operable to control the number of pairs of corresponding signal levels and distortion compensation control values based on a correspondence between (i) a number of distortion compensation control values, and (ii) stipulated conditions.

**Claim 23 (New)** A distortion compensator according to claim 20, wherein said distortion compensation control value number controller includes an elapsed time measurement unit operable to:

measure time elapsed during a processing of the signal amplified by the amplifier; and

increase the number of pairs of corresponding signal levels and distortion compensation control values according to an increase in the measured time elapsed.

**Claim 24 (New)** A distortion compensator according to claim 23, wherein said distortion compensation control value number controller is operable to control the number of pairs of corresponding signal levels and distortion compensation control values based on a correspondence between (i) a number of distortion compensation control values, and (ii) stipulated conditions.

**Claim 25 (New)** A distortion compensator according to claim 20, further comprising an update amount controller operable to control an amount by which the correspondence between the signal levels and the distortion compensation control values is updated by said distortion compensation control value correspondence updater.

**Claim 26 (New)** A distortion compensator for compensating for distortion generated by an amplifier that amplifies a signal, said distortion compensator comprising:  
a signal level detector operable to detect a level of a signal to be amplified by the

amplifier;

a distortion compensation execution unit operable to execute distortion compensation on the signal to be amplified according to a mode of distortion compensation determined based on (i) the level of the signal to be amplified, and (ii) a correspondence between signal levels and distortion compensation control values;

a distortion compensation control value correspondence updater operable to update the correspondence between the signal levels and the distortion compensation control values based on the signal amplified by the amplifier; and

an update amount controller operable to control an amount by which the correspondence between the signal levels and the distortion compensation control values is updated,

wherein said update amount controller is operable to:

decrease the amount by which the correspondence between the signal levels and the distortion compensation control values is updated according to a decrease in the distortion generated by the amplifier; and

increase the amount by which the correspondence between the signal levels and the distortion compensation control values is updated according to an increase in the distortion generated by the amplifier.

**Claim 27 (New)** A distortion compensator according to claim 26, wherein said update amount controller is operable to control the amount by which the correspondence between the signal levels and the distortion compensation control values is updated based on a correspondence between (i) the amount determined by said update amount controller, and (ii) stipulated conditions.

**Claim 28 (New)** A distortion compensator for compensating for distortion generated by an amplifier that amplifies a signal, said distortion compensator comprising:

a signal level detector operable to detect a level of a signal to be amplified by the amplifier;

a distortion compensation execution unit operable to execute distortion compensation on the signal to be amplified according to a mode of distortion

compensation determined based on (i) the level of the signal to be amplified, and (ii) a correspondence between signal levels and distortion compensation control values;

a distortion compensation control value correspondence updater operable to update the correspondence between the signal levels and the distortion compensation control values based on the signal amplified by the amplifier; and

an update amount controller operable to control an amount by which the correspondence between the signal levels and the distortion compensation control values is updated,

wherein said update amount controller includes an elapsed time measurement unit operable to:

measure time elapsed during a processing of the signal amplified by the amplifier; and

decrease the amount by which the correspondence between the signal levels and the distortion compensation control values is updated according to an increase in the measured elapsed time.

**Claim 29 (New)** A distortion compensator according to claim 28, wherein said update amount controller is operable to control the amount by which the correspondence between the signal levels and the distortion compensation control values is updated based on a correspondence between (i) the amount determined by said update amount controller, and (ii) stipulated conditions.

**Claim 30 (New)** A distortion compensator for compensating for distortion generated by an amplifier that amplifies a signal, said distortion compensator comprising:

a signal level detector operable to detect a level of a signal to be amplified by the amplifier;

a distortion compensation execution unit operable to execute distortion compensation on the signal to be amplified according to a mode of distortion compensation determined based on (i) the level of the signal to be amplified, and (ii) a correspondence between signal levels and distortion compensation control values;

a distortion component detector operable to detect distortion components, as the

distortion, generated by the amplifier;

a distortion compensation control value correspondence updater operable to update the correspondence between the signal levels and the distortion compensation control values based on the distortion detected by said distortion component detector; and

an update frequency controller operable to control a frequency at which the correspondence between the signal levels and the distortion compensation control values is updated by said distortion compensation control value correspondence updater,

wherein said distortion compensation execution unit includes a distortion compensation table for storing the correspondence between the distortion compensation control values and the signal levels.

**Claim 31 (New)** A distortion compensator according to claim 30, wherein said update frequency controller is operable to:

decrease the frequency at which the correspondence between the signal levels and the distortion compensation control values is updated according to a decrease in the distortion generated by the amplifier; and

increase the frequency at which the correspondence between the signal levels and the distortion compensation control values is updated according to an increase in the distortion generated by the amplifier.

**Claim 32 (New)** A distortion compensator according to claim 31, wherein said update frequency controller is operable to control the frequency at which the correspondence between the signal levels and the distortion compensation control values is updated based on a correspondence between (i) the frequency determined by said update frequency controller, and (ii) stipulated conditions.

**Claim 33 (New)** A distortion compensator according to claim 30, wherein said update frequency controller includes an elapsed time measurement unit operable to:

measure time elapsed during a processing of the signal amplified by the amplifier; and

decrease the frequency at which the correspondence between the signal levels

and the distortion compensation control values is updated according to an increase in the measured time elapsed.

**Claim 34 (New)** A distortion compensator according to claim 33, wherein said update frequency controller is operable to control the frequency at which the correspondence between the signal levels and the distortion compensation control values is updated based on a correspondence between (i) the frequency determined by said update frequency controller, and (ii) stipulated conditions.

**Claim 35 (New)** A distortion compensator according to claim 30, wherein said distortion compensation execution unit further includes a distortion compensation control value interpolation unit operable to perform interpolation based on the correspondence between the signal levels and the distortion compensation control values, thereby determining the mode of distortion compensation corresponding to the level of the signal to be amplified.